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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,319	11/21/2000	Stephen Yuen	4704/USA/ETCH/SILICON	3056

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APPLIED MATERIALS, INC.  
2881 SCOTT BLVD. M/S 2061  
SANTA CLARA, CA 95050

EXAMINER

GOUDREAU, GEORGE A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09-718,319

Applicant(s)

Yuen et al.

Examiner

George Goudreau

Group Art Unit

1763

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on (11-00 to 9-02) (9-papers #1-10)
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-54 is/are pending in the application.
- Of the above claim(s) 26-33 39-50 is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-25, 34-38, 51-54 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
  - ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

16. Claims 1-4, 6-25, 34-38, and 51-54 are rejected under 35 U.S.C. 102 (e) as being anticipated by Chen et. al. (6,283,131).

Chen et. al. disclose a process for patterning a polysi gate (68) on the surface of a wafer which is comprised of the following steps which are sequentially conducted in the same plasma etching chamber:

- A plasma comprised of (HBr-Ar-O2) is used to trim a photo resist etch mask (26) on a wafer.;

- The SiON AR hard mask layer (22) is etched in a plasma comprised of (CF4-Ar).;

- The photo resist etch mask is ashed in a plasma comprised of O2.;

- The wafer, and plasma etcher are cleaned of polymeric etch residues left on the wafer surface, and on the interior surfaces of the plasma etching chamber from the previous plasma etching steps by using a plasma comprised of CF4.; and

- The polysi layer is first etched in a plasma comprised of (HBr-Cl2-He-O2) during a main etching step, and then etched in a plasma comprised of (HBr-He-O2) during an over etching step.

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The wafer is then removed from the plasma etching chamber in order to remove the SiON hard mask layer from the wafer surface. This is discussed specifically in columns 3-6; and discussed in general in columns 1-8. This is shown in figures 1-12.

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

19. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et. al. as applied in paragraph 16 above.

Chen et. al. as applied in paragraph 16 above fail to disclose the following aspects of applicant's claimed invention:

-the specific usage of a plasma of the composition which is claimed by the applicant to ash the photo resist etch mask

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It would have been obvious to one skilled in the art to employ a plasma which is comprised of (N<sub>2</sub>-O<sub>2</sub>) to ash the photo resist etch mask in the process taught above based upon the following. Chen et. al. employ a plasma comprised of O<sub>2</sub> to ash the photo resist etch mask in their process. The usage of N<sub>2</sub> as an inert gas diluent in a plasma etching / ashing process is conventional or at least well known in the etching/ ashing arts. (The examiner takes official notice in this regard.) Further, this simply involves the usage of an alternative, and at least equivalent means for stripping the photo resist etch mask in the process taught above to those means which are specifically taught above.

20. Claims 11-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-In line 1 of claim 11, the term "the layer" lacks proper antecedent basis.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner George A. Goudreau whose telephone number is (703) -308-1915. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

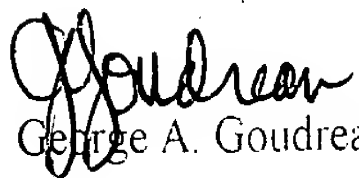
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Examiner Gregory Mills, can be reached on (703) -308-1633. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) -306-3186.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) -308-0661.

  
George A. Goudreau/gag

Primary Examiner

AU 1763